Professional Services at the **core** of your business

SUDLOWS
working at the core of your business

Sudlows Professional Services.

FACILITY AUDIT

SPECIALIST TESTING

FEASIBILITY STUDIES

COMMISSIONING MANAGEMENT

DESIGN VERIFICATION

QUALITY ASSURANCE
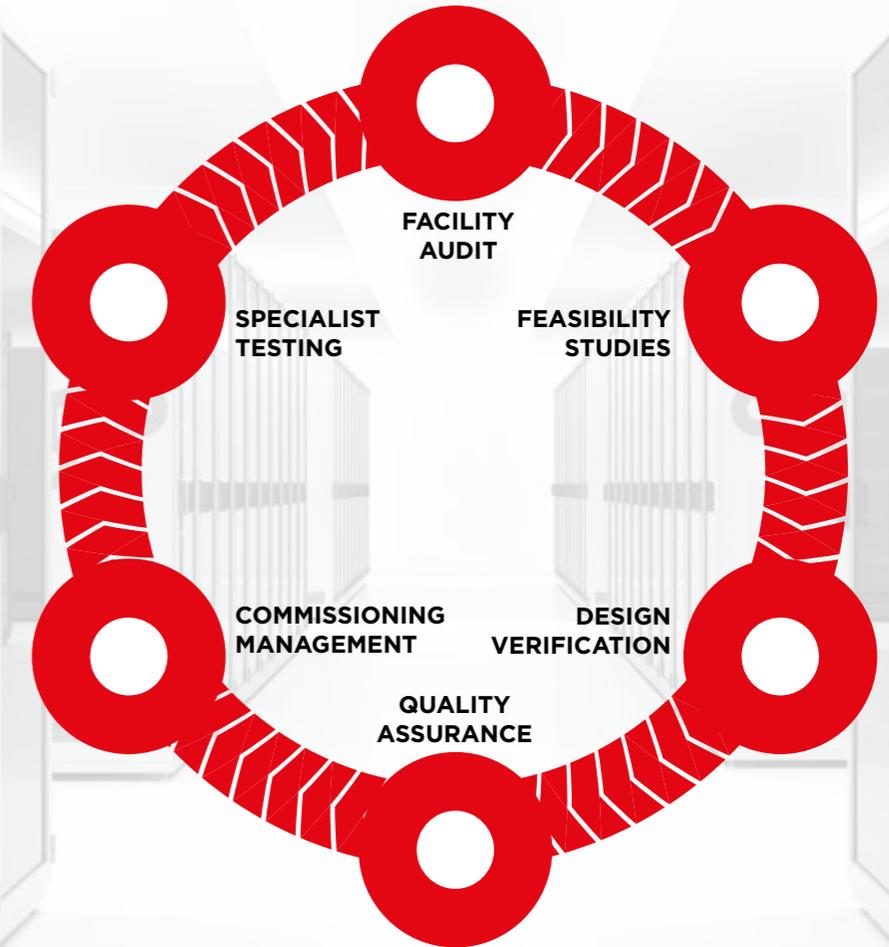
Sudlows' Professional Services are structured to provide support, expertise and management to navigate through the entire life-cycle of your critical facility.

Our data centre consultants will guide you through every critical stage from preliminary feasibility assessment through to final testing and commissioning. Every aspect of our technical services are designed and carried out by our team of award winning experts.

As critical infrastructure specialists, we have both the knowledge and experience of the latest technologies and a thorough understanding of all aspects of a critical facility, data centre or server room. Building on these strengths enables Sudlows to maximise the benefits at the early Audit, Feasibility and Design stages and to understand the weaknesses during the final Testing and Commissioning stage. We are able to deliver significant Return on Investment (ROI) and ensure your project is in safe hands at every stage.

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Facility Audit

- Facility Overview
- Operating Standards
- Points of Failure
- Gap Analysis
- Business Continuity

For existing facilities, we will undertake a site audit and produce a comprehensive report detailing the condition of the installation and its current operation. This will be assessed against best practices, a target level of resiliency or a specific standard, e.g. Uptime Institute Tier Topology Standards or BS EN 50600 Data Centre Class Standards.

The audit comments on all elements of the facility from the physical location to the specifics of the plant and equipment. As data centre specialists, a review of the configuration, type and condition of critical plant items will be undertaken including Cooling Systems, UPS, Standby Generation, and LV/HV Distribution. In addition to this, specialist ancillary systems are also assessed; such as BMS and DCIM Systems, Security and Access Control and Fire Suppression. Finally, an assessment of the building fabric, security arrangements, and the approach to maintenance ensures that the audit process is comprehensive and complete.

During the audit, passive measurements of the environment are taken and recorded to assess the thermal characteristics of the space and identify opportunities for improvement. Where a more detailed assessment is required or where specific modifications are proposed, this can be enhanced with a full in-house CFD analysis and report which can not only model the running condition but also simulate operational failures, design changes or load additions to the space.

The audit process can identify any underlying issues with the design or operation of the facility and can include a comprehensive single point of failure analysis, along with recommendations and potential options for mitigation. During the audit, a detailed assessment of the load within the space and current energy consumption will be completed and recommendations made where there are opportunities to improve the operational efficiency and reliability.

As a complete data centre specialist, our project teams are on hand to support the implementation of any recommendations made.

Feasibility Studies

- Site Selection and Planning
- Specific Technology Viability
- Cost Modelling
- Return on Investment
- Energy, Environmental and Sustainability

Once a full audit has been undertaken, the next step is a detailed feasibility study where an understanding and familiarity with the challenges and opportunities ahead provide the foundation for success.

Our feasibility services use our experience and industry knowledge to provide a detailed and thorough assessment of the possible risks and benefits for a potential project. These can be commercial elements such as a Return on Investment (ROI), or technological factors which affect the ability of the facility to perform and meet Service Level Agreements (SLA).

Increasingly, environmental factors are a key part of the decision making process, requiring projects to be aligned with the organisations' ethics and commitments. To assist with this, we can provide Environmental Impact Assessments (EIA), such as CO_2 footprint and water usage, or more thorough life-cycle sustainability reports to enable the right solution to be delivered.

When providing feasibility services to assist with the proposed planning of a new facility, we can assess and compare to alternatives including the upgrade to an existing data centre or the consolidation of multiple sites.

The purpose of the detailed feasibility study is to assess the wider impact of any alteration to your critical infrastructure, often in terms of cost and risk, and to ensure this is explained and understood by all project stakeholders. This is considered one of the most important steps in shaping strategy and determining whether a new facility is necessary and right for your business. The information within these reports is key to the progression of the project, and an important document during the Design and Design Verification phases.

Design Verification

- Specification Adherence
- Evaluation of Buildability
- Operational and Maintenance Review
- Enhanced CFD Modelling
- BIM Standards and Validation

Sudlows will provide a full assessment of the proposed data centre facility to ensure all elements of the design are fit for purpose, meet the intended specification and project objectives, and are compliant to current standards and best practice.

Our expertise, and understanding of the underlying technology, enable us to provide independent engineering advice at all stages of a project and has led us to work with numerous national and international organisations including the BBC, Brent Council, The Co-operative Group, Manchester Building Society, Symturk Istanbul and Edarat Group.

Our Design Verification teams make full use of a range of advanced analytical methods, including our own in-house Computational Fluid Dynamics (CFD), which enables us to simulate, develop and optimise the configuration of a data centre to a high level of accuracy.

Using industry leading simulation technologies, we ensure that before a facility has been constructed, the performance of its cooling architecture has been modelled at millions of locations within its walls and verified to be within specification.
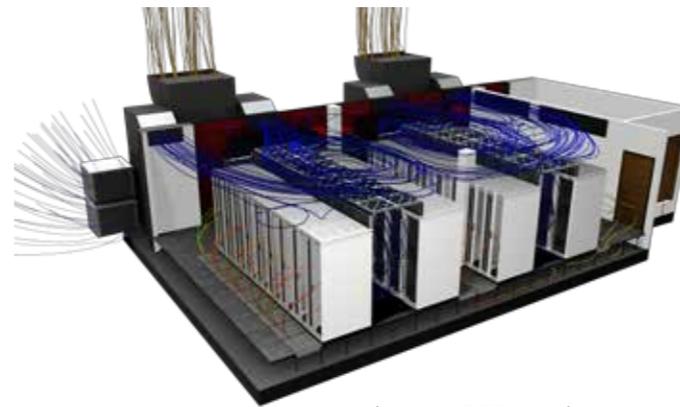
In-house CFD analysis

Project Quality Assurance

- Design Drawing Review
- Technical Submittal Evaluation
- Programme Management
- Installation Quality Inspections
- Professional Snagging Reports

Working as part of the client team, we can ensure that a facility is constructed and delivered to the highest standards, and does not deviate from the approved design or installation methods.

We can act as your appointed critical infrastructure specialist and throughout the project will monitor, verify, critique and approve a contractor's technical submittals and drawings, identifying deviations or performance limiting factors where they exist, in order to mitigate risk.

Our highly qualified team of **Uptime Institute Accredited Tier Designers** and experienced Project Managers work closely with your project stakeholders to create a structured and detailed programme that will deliver the commercial and technical objectives of the project.

With exacting planning and co-ordination, we will ensure projects run as expected against the delivery programme and are aligned with project budgets. This supports the envisaged business case and in turn delivers the anticipated commercial benefits.

Uptime Institute™
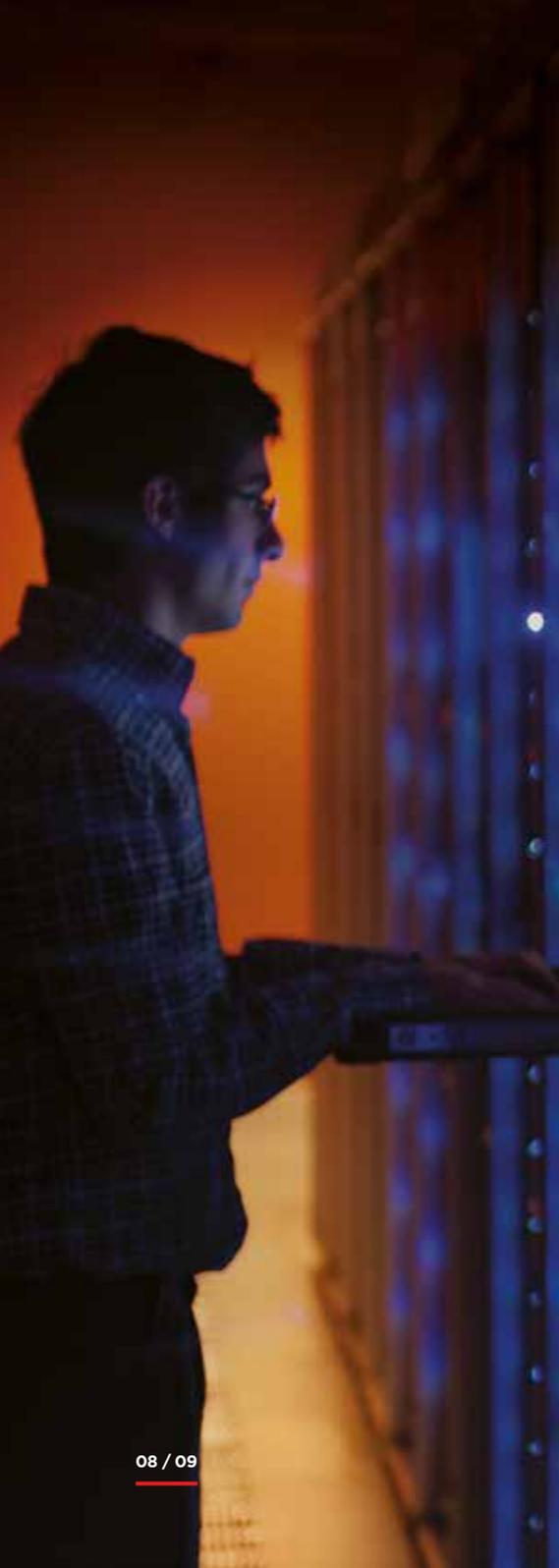
Commissioning Management

* Programme Sequencing

* Dependency Management

* Witnessing and Supervision

* Comprehensive Reporting

Our independent testing and commissioning teams provide an extensive range of services tailored towards critical infrastructures and modern data centre environments all of which start with the accurate planning of a commissioning programme - the execution and management of which is key to the successful delivery of a project.

Our teams instinctively understand the interactions of critical and data centre systems and the dependencies which exist. We recognise that considering these points early in a project minimises the impact to the overall programme. External commissioning engineers are often booked weeks in advance, meaning that even a single day's setback can cause long delays, if poorly managed.

Commissioning will be fully undertaken on your behalf and we are also able to witness and sign off systems as completed. Within an existing facility we will further assess and plan the commissioning in order to minimise risk and ensure continuity to live services.

Comprehensive commissioning planning and management begins as early as the facility's conceptual design phase to minimise dependencies and mitigate risk and will often continue throughout the delivery of the project.

Our approach ensures that the various elements of the infrastructure all work together effectively and efficiently, resulting in a co-ordinated system rather than distinct components.

Specialist Testing Services

* Systems Acceptance Testing (**SAT**)

* Integrated Systems Testing (**IST**)

* Switching and Simulation

* Monitor, Record and Report

* Test Script Development

Following on from the systems commissioning stage, our independent testing and commissioning teams can provide extensive and industry leading Systems Acceptance Testing (SAT) and Integrated Systems Testing (IST) including a clear and detailed sequence and programme.

The SATs first verify that the equipment has been installed correctly, as designed and in-line with the manufacturer's recommendations. They then test performance and capacity within both the design load and, if applicable, any acceptable overload condition.

The IST then tests the data centre as a full and complete system, and is the ideal opportunity to ensure that everything is operating correctly before being handed over to the client. The IST will push the data centre to its design limits in terms of capacity, maintainability, and fault tolerance. If the facility should tolerate a generator failing to start we will simulate it, likewise, if the chillers are designed to be maintained live, we will demonstrate it.

Ultimately, the IST is the foundation for future confidence, ensuring the facility will operate as intended even when pushed to the limit.

We will plan, undertake, and record testing independently from the project delivery teams, or alternatively can act as a client's representative or independent witness where testing is being co-ordinated and demonstrated by others.
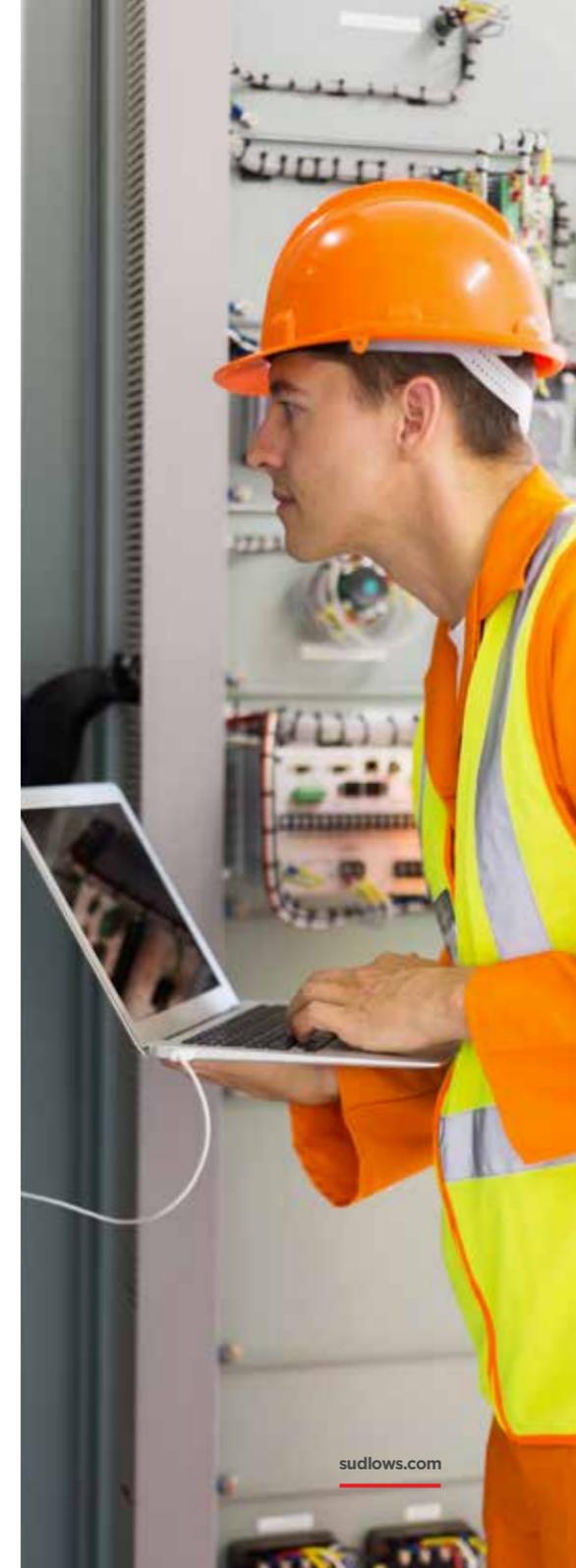
A:LIST
Advanced Load Integrated Systems Test

- Realistic Exhaust Temperatures

- Dual Fed Power Topology

- Cold and Hot Aisle Compatible or Standalone Chimney Operation

- Single Phase or Three Phase Operation up to 18kW per Cabinet
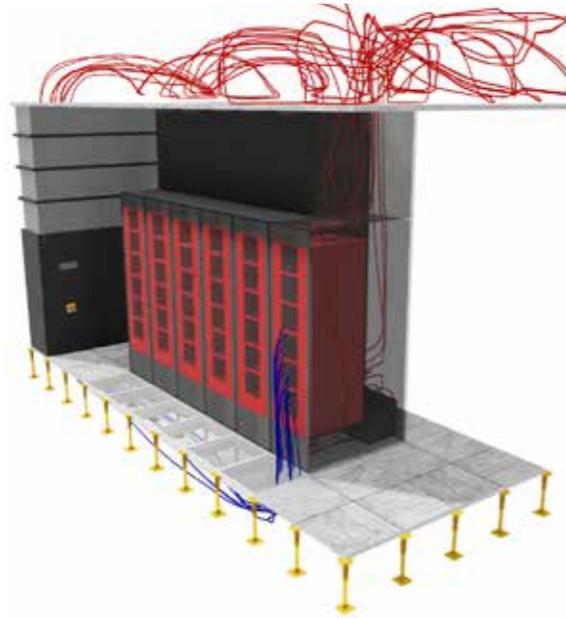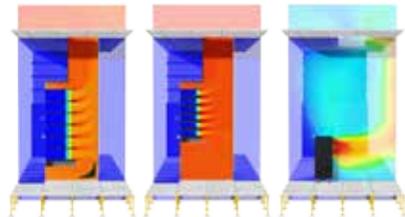
Designed to fill the gap in data centre facilities final stage Integrated Systems Testing, the A:LIST is a bespoke solution offering highly detailed and accurate load simulation as part of a comprehensive final test and commissioning programme.

The A:LIST is capable of testing up to 18kW of power density across each module with unique flexibility to rapidly simulate part and full IT load. What distinguishes the A:LIST from traditional heat banks is its ability to provide a realistic simulation of the power and thermal characteristics of dual fed IT. This comprehensive power testing capacity can be individually scaled up and down and can be used to demonstrate the real-life performance of the most

resilient designs, up to and including Uptime Institute Tier IV and BS EN50600 Class 4.

The A:LIST has already been successfully deployed within a range of Tier III and Tier IV facilities, and has been assessed for compatibility with the extensive demonstration requirements of the final tier certification of a facility with the Uptime Institute and to a wide range of other recognised performance Class or Rating systems.

This new addition to the Sudlows IST programme offers highly accurate heat load testing that are available as part of Sudlows testing services, on a scalable basis, to test both small and large critical facilities.

WINNER
DCS AWARDS

A:LIST
AS CLOSE TO IT
AS IT GETS

SUDLOWS
working at the core of your business

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